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March 1984 ... IBM TECHNICAL DISCLOSURE BULLETIN ... ≤ pp5688-5689
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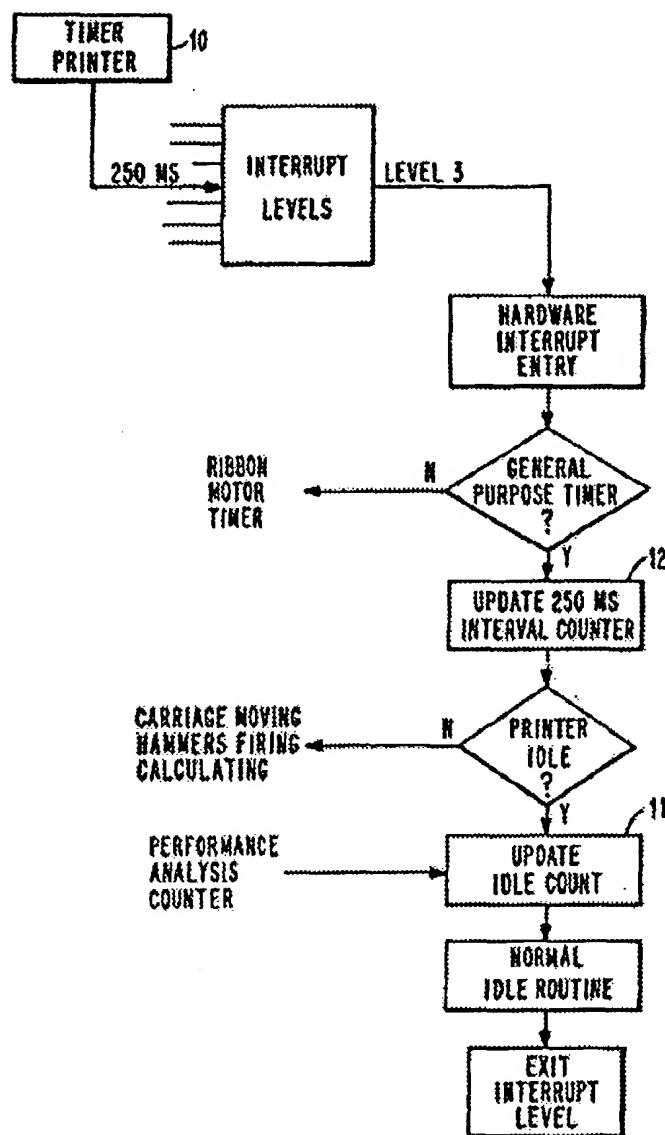
Title: **Realtime Throughput Measurement**

Text:

This article describes a method of measuring whether the failure of a printer to print data at a desired throughput rate is the fault of the printer or of the system in not providing data for output at the required rate. 2 p. Timer 10 is a continuously running timer which generates 250 ms timing pulses (on interrupt level 3) to keep track of various operations within the print mechanism. Counter 12 is used to count the occurrences of the 250 ms interrupts. If the printer is idle at this interrupt time, the idle condition is detected by the printer microprocessor which then activates and updates idle counter 11 in accordance with the idle time routine shown in the data flow chart. The idle counter may comprise two bytes of information stored in writeable memory. The idle count will be updated on each pass through the idle routine. At the completion of the job, the contents of the idle counter can be displayed on the printer op panel. An assessment of performance can be made by comparing idle counts with the count of the 250 ms intervals in counter 12. The method eliminates the need for making special measurements with external equipment.

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Diagram



Order/Code/Docket: 84A 60781 / 49-012 P16 / EN8820036

March 1984

IBM TECHNICAL DISCLOSURE BULLETIN

pp5688-5689

L Number	Hits	Search Text	DB	Time stamp
-	1	"879589"	US-PGPUB	2004/08/03 15:35
-	6720	(printer printing) with (timing timeout)	USPAT	2004/07/30 16:40
-	69	(printer printing) with timeout	USPAT	2004/07/30 16:43
-	164	(printer printing) same timeout	USPAT	2004/07/30 16:43
-	3	8.ab.	USPAT	2004/07/30 16:43
-	6	10.ab.	USPAT	2004/07/30 16:44
-	5635	(plurality multiple) adj2 (timer counter)	USPAT	2004/07/30 17:12
-	38	((plurality multiple) adj2 (timer counter)) same timeout	USPAT	2004/08/04 13:06
-	128	((plurality multiple) adj2 (timer counter)) same (multiplex?r mux)	USPAT	2004/07/30 17:22
-	57	((plurality multiple) adj2 (timer counter)) with (multiplex?r mux)	USPAT	2004/07/30 17:22
-	192	((plurality multiple) adj2 (timer counter)) same (stor\$3 sav\$3) near2 (count value)	USPAT	2004/07/30 17:57
-	19	23.ab.	USPAT	2004/07/30 17:35
-	69	23.clm.	USPAT	2004/07/30 17:38
-	59	((plurality multiple) adj2 (timer counter)) same (stor\$3 sav\$3) near4 (count value) not (((plurality multiple) adj2 (timer counter)) same (stor\$3 sav\$3) near2 (count value))	USPAT	2004/07/30 18:07
-	20	(stor\$3 sav\$3) adj (all each)	USPAT	2004/07/30 18:09
-	2365	(stor\$3 sav\$3) with (timeout tim\$3 adj out)	USPAT	2004/07/30 18:10
-	66	((plurality multiple) adj2 (timer counter)) same tim\$3 adj out	USPAT	2004/07/30 18:17
-	221	((plurality multiple) adj2 (timer counter)) same interrupt	USPAT	2004/07/30 18:18
-	11	34.ab.	USPAT	2004/07/30 18:19
-	861	((plurality multiple) adj2 (timer counter)) and (fax facsimile printer)	USPAT	2004/07/30 18:21
-	43	19.ab. and (fax facsimile printer)	USPAT	2004/07/30 18:26
-	214	19.clm. and (fax facsimile printer)	USPAT	2004/07/30 18:26
-	5	("5471564" "5577213" "5745663" "5870533" "5740497").pn.	USPAT	2004/08/04 13:38
-	496	printer near2 fail\$3	USPAT	2004/08/03 18:17
-	11	(printer near2 fail\$3) same (analysis analyz\$3)	USPAT	2004/08/03 18:23
-	10	printer near2 fail\$3	IBM_TDB	2004/08/03 18:19
-	2	(printer near2 fail\$3) and (timer counter timeout)	IBM_TDB	2004/08/03 18:18
-	201	printer near2 fail\$3	US-PGPUB	2004/08/03 18:21
-	8	58.ab.	US-PGPUB	2004/08/03 18:20
-	10	58.clm.	US-PGPUB	2004/08/03 18:20
-	57	(printer near2 fail\$3) and (timer counter timeout)	US-PGPUB	2004/08/03 18:20
-	3	(printer near2 fail\$3) same (timer counter timeout)	US-PGPUB	2004/08/03 18:20
-	92	printer near2 fail\$3	EPO; JPO	2004/08/03 18:23
-	2	(printer near2 fail\$3) and (analysis analyz\$3)	EPO; JPO	2004/08/03 18:23
-	5	(printer near2 fail\$3) same (timer timeout counter)	EPO; JPO	2004/08/03 18:25
-	5642	(plurality multiple all each) adj2 (timer counter)	USPAT	2004/08/04 14:06
-	114	((stor\$3 sav\$3 log\$4) not (logic storage)) near3 (timeout tim\$3 adj out)	USPAT	2004/08/04 13:33
-	499	((stor\$3 sav\$3 log\$4) not (logic storage)) near3 Interrupt	USPAT	2004/08/04 13:32
-	1	((plurality multiple all each) adj2 (timer counter)) same (((stor\$3 sav\$3 log\$4) not (logic storage)) near3 (timeout tim\$3 adj out)) (((stor\$3 sav\$3 log\$4) not (logic storage)) near3 Interrupt))	USPAT	2004/08/04 13:30
-	37	((plurality multiple all each) adj2 (timer counter)) with (analysis analyz\$3)	USPAT	2004/08/04 13:31
-	84	((plurality multiple all each) adj2 (timer counter)) with (error fail\$3)	USPAT	2004/08/04 13:31
-	7692	((stor\$3 sav\$3 log\$4) not (logic storage)) adj (plurality multiple)	USPAT	2004/08/04 13:34
-	111	((stor\$3 sav\$3 log\$4) not (logic storage)) adj (plurality multiple)) with (timer counter)	USPAT	2004/08/04 13:34
-	51	21.clm.	USPAT	2004/08/04 13:34
-	56	printer with timeout	USPAT	2004/08/04 13:48

-	43	(timeout time-out) near2 (evaluat\$3 analy\$4)	USPAT	2004/08/04 13:51
-	21	(timeout time-out) near2 diagnos\$3	USPAT	2004/08/04 13:54
-	85	(timeout time-out) near4 (hstory log logging)	USPAT	2004/08/04 13:54
-	1062	((plurality multiple all each) adj2 (timer counter)	US-PGPUB	2004/08/04 14:12
-	19	((plurality multiple all each) adj2 (timer counter)) same (mux multiplex?r)	US-PGPUB	2004/08/04 14:07
-	57	((plurality multiple all each) adj2 (timer counter)) same (history log record\$3)	US-PGPUB	2004/08/04 14:01
-	60	((plurality multiple all each) adj2 (timer counter)) same (sav\$3 stor\$3 not storage)	US-PGPUB	2004/08/04 14:01
-	17	30.clm.	US-PGPUB	2004/08/04 14:02
-	28	31.clm.	US-PGPUB	2004/08/04 14:04
-	8	((plurality multiple all each) adj2 (timer counter)) with (evalua\$3 analyz\$3 diagnos\$4)	US-PGPUB	2004/08/04 14:03
-	154	printer near4 statistic\$2	USPAT;	2004/08/04 14:04
-	6	35.ab.	US-PGPUB	2004/08/04 14:04
-	56	((plurality multiple all each) adj2 (timer counter)) with (timeout tim\$3 adj out)	USPAT;	2004/08/04 14:04
-	402	((plurality multiple all each) adj2 (timer counter))	US-PGPUB	2004/08/04 14:06
-	0	((plurality multiple all each) adj2 (timer counter)) same (mux mutllplex?r)	USPAT	2004/08/04 14:06
-	13	((plurality multiple all each) adj2 (timer counter)) same (timeout tim\$3 adj out)	EPO; JPO;	2004/08/04 14:19
-	13	((plurality multiple all each) adj2 (timer counter)) with (timeout tim\$3 adj out)	IBM_TDB	2004/08/04 14:12
-	2	((plurality multiple all each) adj2 (timer counter)) same (log hstory)	EPO; JPO;	2004/08/04 14:13
-	6	((plurality multiple all each) adj2 (timer counter)) same sav\$3	IBM_TDB	2004/08/04 14:17
-	10	((plurality multiple all each) adj2 (timer counter)) same (diagnos\$4 evaluat\$3 analy\$4)	US-PGPUB	2004/08/04 14:20
-	23	((plurality multiple all each) adj2 (timer counter)) same (error fail\$3)	EPO; JPO;	2004/08/04 14:20
-	12	hang adj timer	IBM_TDB	2004/08/04 14:21
-			USPAT	2004/08/04 14:22

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